# Fever*Watchers*™
## www.FeverWatchers.com

**Model:RC802i**

**Clinically Tested. FDA Cleared.**

# Contents

## I. SAFETY PRECAUTIONS

- Follow the maintenance advice stipulated in this instruction manual.
- This device may be used for personal home use.
- This device must only be used for the purposes described in this instruction manual.
- This device must only be used in an ambient temperature range of between 50°F and 104°F (10°C and 40 °C).
- This device must always be kept in a clean, dry area.
- Do not expose this thermometer to electric shocks.
- Do not expose this thermometer to extreme temperature conditions of >122°F (>50°C) or <-4°F (< - 20°C).
- Do not use this device in relative humidity higher than 85%.
- The protective glass over the lens is the most fragile part of the Thermometer, therefore
- Do not touch the glass of the infrared lens with your fingers.
- Clean the glass with a cotton swab lightly moistened with 70 proof isopropyl alcohol.
- Do not expose the thermometer to sunlight or to water.
- Do not use this device outside.
- Never drop the device.
- Should a problem occur with your device, please contact your retailer. Do not attempt to repair this device yourself.

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**IMPORTANT SAFEGUARDS**

THE MANUFACTURER RESERVES THE RIGHT TO ALTER THE SPECIFICATIONS OF THE PRODUCT WITHOUT PRIOR NOTIFICATION

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## II. INTRODUCTION

The OctiveTech FeverWatchers RC802i Non-contact thermometer was developed using the latest infrared technology. This technology allows the temporal artery (TA) temperature to be taken at a distance of approximately 2 inches (5cm) from the forehead.

Precise, instantaneous and without contact, the FeverWatchers RC802i is, to date, the most suitable thermometer for no risk temperature measurement. It has been demonstrated that this method of TA temperature measurement is more precise than tympanic thermometry and less invasive than rectal thermometry (1). However, as with other types of thermometers, the FeverWatchers RC802i must be used properly in order to obtain reliable and stable results.

You are therefore advised to read the instruction manual and the safety precautions carefully before use.

(1) Greenes D, Fleisher G. Accuracy of a Noninvasive Temporal Artery Thermometer for Use in Infants. Arch Pediatr Adolesc Med 2001;155:376.

## III. PRECAUTIONS BEFORE USE

> The FeverWatchers RC802i is pre-set at the factory.
> It is not necessary to calibrate the device when
> starting it up.

In order to obtain reliable and stable results, you are advised to allow the FeverWatchers RC802i to acclimate to any significant changes in the ambient temperature due to a change in environment for 15 to 20 minutes before using it

It is important to allow a one minute interval between two measurements.

## IV. OPERATING PRINCIPLE

All objects: solid, liquid, or gas, emit thermal energy by radiation. The intensity of this energy depends on the temperature of the object.The FeverWatchers RC802i infrared thermometer is therefore able to measure the temperature of a person by the thermal energy the person emits. This measurement can be taken due to an external temperature probe on the device which permanently analyses and registers the directional ambient temperature. Therefore, as soon as the operator holds the thermometer near the body and activates the radiation sensor, the measurement is taken instantly by detection of the infrared heat generated by the arterial blood flow. Body heat can therefore be measured without any interference from the heat of the surrounding environment.

### THE DIFFERENT METHODS OF TEMPERATURE MEASUREMENT

### Core temperature

Core temperature is the most precise measurement and involves measuring the temperature in the pulmonary artery by means of a catheter equipped with a thermal probe which can read the temperature in situ. The same method is employed for probes measuring the esophageal temperature. However, such invasive temperature measurement methods require specific equipment and expertise.

### Rectal thermometry

Rectal temperature adjusts slowly in comparison to the changes of the body's internal temperature. It has been demonstrated that rectal temperature remains raised long after the internal temperature of the patient has started to drop and vice versa. Furthermore, rectal perforations have been known to occur as a result of this method and without appropriate sterilization techniques, rectal thermometry can spread germs often found in feces.

**Oral thermometry**
Oral temperature is easily influenced by recent ingestion of food or drinks and by breathing through the mouth. To measure oral temperature, the mouth must remain closed and the tongue lowered for three to four minutes which is a difficult task for young children to accomplish. Use of older technologies such as Mercury-based thermometers pose an additional risk of accidental breakage.

**Axillary (armpit) temperature**
Although it may be easy to measure axillary temperature, it has been proven that it does not provide an accurate measurement of the child's internal temperature. To take this type of temperature, the thermometer must be wedged tightly over the axillary artery. Despite the low sensitivity and relative inaccuracy of axillary temperature in detecting fever, this method is recommended by The American Academy of Pediatrics as a screening test for fever in newborns.

**Tympanic thermometry**
In order to obtain a precise temperature reading, good command of the measurement technique is required. The thermometer probe must be placed as close as possible to the warmest part of the external ear canal. An incorrectly placed probe could lead to a false temperature reading.

**NORMAL TEMPERATURES ACCORDING TO MEASUREMENT METHOD**

| MEASUREMENT METHOD | NORMAL TEMP° |
|---|---|
| RECTAL | 97.88°F – 100.4°F (36.6°C – 38°C) |
| ORAL | 95.9°F – 99.5°F (35.5°C – 37.5°C) |
| AXILLARY | 94.5 °F – 99.14°F (34.7°C – 37.3°C) |
| AURICULAR | 96.44°F – 100.4°F (35.8°C – 38°C) |
| TEMPORAL (FeverWatchers) | 96.44°F – 100°F (35.8°C – 37.8°C) |

The temperature of the human body varies throughout the day. It can also be influenced by numerous external factors: age, sex, type and thickness of skin, etc.

## ADVANTAGES OF TEMPORAL ARTERY (TA) TEMPERATURE

Infrared arterial temperature can be measured using a device placed on the forehead, in the temporal artery region. It has been demonstrated that this relatively new method of measuring temperature is more precise than tympanic thermometry and more tolerable than rectal thermometry.

The FeverWatchers RC802i thermometer has been designed to produce an instant forehead temperature reading without any contact with the temporal artery. As this artery is quite close to the surface of the skin and therefore accessible, in addition to the blood flow being permanent and regular, allowing precise measurement of thetemperature. This artery is linked to the heart by the carotid artery which is directly linked to the aorta. It forms part of the main trunk of the arterial system. The efficiency, speed and comfort of taking a temperature from this area make it ideal when compared with other temperature measurements methods.

### NORMAL TEMPERATURES ACCORDING TO AGE

| Age | °C | °F |
|-----------|-----------|------------|
| 0-2 years | 36.4-38.0 | 97.5-100.4 |
| 3-10 years | 36.1-37.8 | 97.0-100.0 |
| 11-65 years | 35.9-37.6 | 96.6-99.7 |
| > 65 years | 35.8-37.5 | 96.4-99.5 |

### PRACTICAL CONSIDERATIONS WHEN TAKING A TEMPERATURE

- In order to ensure that precise and accurate temperature measurements are obtained, it is essential that each user has received adequate information on and training in the temperature measurement technique when using such a device.
- It is essential to remember that although procedures such as taking a temperature may be simple they must not be trivialized.
- Temperature should be taken in a neutral context. The patient must not have undertaken vigorous physical activity prior to taking

his/her temperature and the room temperature must be moderate.
- Be aware of physiological variations in temperature which must be taken into consideration when evaluating the results: temperature increases by 0.9°F (0.5°C) between 6am and 3pm. Women have a temperature that is higher, on average, by around 0.3°F (0.2°C). Their temperature also varies in accordance with their menstrual cycle. The temperature rises by 0.9°F (0.5°C) in the second half of the cycle and at the early stages of pregnancy.
- When sitting, temperature is lower by about 0.5°F to 0.7°F (0.3°C to 0.4°C) than when standing.

**HOW TO TAKE A TEMPERATURE**
**Aim at the FOREHEAD, over the right temporal region, from a distance of about 2 in (5cm),** press the thermometer's measurement button and the temperature is instantly displayed.

The reliability of the measurement cannot be guaranteed if the temperature is measured over another part of the body (e.g.arm, torso...)
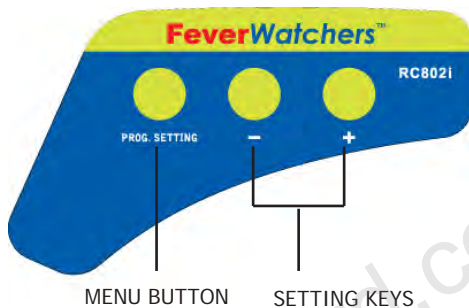
### CONSTRAINTS

Please observe the following before any temperature measurement to ensure a stable and reliable result:
- Push back hair from the forehead
- Wipe away any perspiration from the forehead
- Avoid any airflow (e.g. from nasal passages, air conditioning...)
- Allow a 1 minute interval between two measurements.
- Each time there is a significant change in the ambient temperature due to a change in environment, to allow the FeverWatchers RC802i to acclimate to this ambient temperature for at least 15 minutes before using it.

## V. DESCRIPTION OF THE FeverWatchers RC802i

Setting keys: Prog Setting ; [ - ] ; [ + ]

Infrared Lens

Backlit
LCD panel

Mesuring key (Trigger)

Battery compartment

MENU BUTTON     SETTING KEYS

TRADEMARK

## VI. FUNCTIONS

1. Specially designed to take the body temperature of a person regardless of the room temperature.
2. Quick and reliable results as the device uses the HEIMMANN infrared detection system.
3. Audible alarm if temperature exceeds set value.
4. Memorization of the 32 last measurements.
5. LCD back-lighted digital screen.
6. Data displayed in Celsius or Fahrenheit.
7. Automatic power-off (energy saver).
8. Small, convenient, easy to use.

## ADDITIONAL USES:

FeverWatchers RC802i can also be used to measure the temperature of a baby-bottle or bath, or room temperature (by using the Surface Temp function). This function is in accordance with the Directive 89/336/EEC Electromagnetic Compatibility.

## VII. USE

1. Install battery
2. For the first use or when inserting new batteries wait between 10 minutes for the warm-up of the apparatus and when inserting the new batteries.
3. Aim towards the forehead (see the diagram below for the FeverWatchs positioning), from a distance of 2 in (5 cm), Squeeze the trigger, the temperature is displayed in 1 second. The temperature can also be taken behind the ear lobe.
4. Before taking the temperature, make sure to remove hair and perspiration from the forehead. You can also take the temperature from behind the ear lobe.

# VIII. CONFIGURATION AND FUNCTION OF MENU



MENU BUTTON      SETTING KEYS
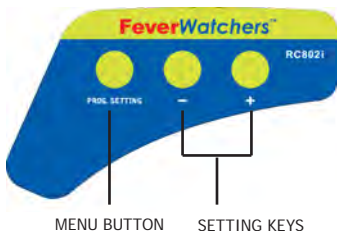
## 1. CHOOSING THE TEMPERATURE UNIT – F1 FUNCTION

Press PROG SETTING button for 3 seconds, the screen displays: F1.
Select '-' for degrees Celsius, '+' for degrees Fahrenheit.
Confirm by pressing PROG SETTING button.

## 2. ALARM SETUP – F2 MENU

Press PROG SETTING button for 3 seconds, the screen displays: F1.
Press twice PROG SETTING button to get to F2.
Select '+' to increase the threshold by 0.1°F (0.1°C), '-' to reduce it
by 0.1°F (0.1°C).
Confirm by pressing PROG SETTING button.

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**Note: The alarm threshold default value is 100.4°F (38°C).**

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## 3. CHOICE OF DISPLAY MODE: BODY OR SURFACE TEMP – F3 MENU

The FeverWatchers RC802i is specially designed to take the body temperature of a human being.
For this, use the BODY mode.
Measurement range for Body mode: 90°F – 109°F (32°C – 42.9°C)

You can also use the FeverWatchers RC802i to measure the temperature of an area or an object, a food product, a liquid or the room temperature.
For this, use the SURFACE TEMP mode.
Measurement range for Surface TEMP mode: 32°F – 140°F (32°C – 60°C)

Press PROG SETTING button for 3 seconds, the screen displays: F1.
Press PROG SETTING button twice to get to F3.

Select 0 by pressing '-' button to get the BODY mode.
Select 1 by pressing '+' button to get the SURFACE TEMP mode
Confirm by pressing PROG SETTING button.

> **Note: The FeverWatchers RC802i is automatically set to BODY at the factory.**

Important: The area temperature differs from the internal body temperature. To obtain the internal temperature always use the BODY mode.

Please make sure to select the BODY mode for an internal temperature reading and the SURFACE TEMP mode for an external area reading (bottle, bath,room...).

### 4. TOTAL DIFFERENCE – F4 MENU

**To adjust the total variation of your FeverWatchers RC802i**

Press PROG SETTING button for 3 seconds, the screen displays: F1.
Press PROG SETTING button three times to get to F4.
Select '+' to increase the difference by 0.1°F (0.1°C), '-' to reduce it
by 0.1°F (0.1°C).
Confirm by pressing PROG SETTING button.
If in doubt, you are advised to leave the total variance at +0°F
(+0°C). This is the original factory setting.
Note: The variance setting exists as a way to offset the difference
between the axillary and temporal artery measurements. Normally
this setting does not need to be adjusted unless fine-tuning the
device is need due to skin condition differences.
Each time there is a significant change in the ambient temperature
due to a change in environment, to allow the FeverWatchers RC802i
to acclimatise to this ambient temperature for at least 15 minutes
before using it.

### 5. BUZZER ON/OFF – F5 MENU

Press PROG SETTING button for 3 seconds, the screen displays: F1.
Press four times PROG SETTING button to get to F5.
Select '+' to open the buzzer (a sound icon is displayed on the
LCD screen), press '-' to stop it (the icon disappear).
Confirm by pressing PROG SETTING button.

### 6. EXITING THE SETTING MODE

Press PROG SETTING button until the screen turns off.

### 7. DATA MEMORY

To display the last temperature measurement, press simultaneously
the '-' and '+' button.

You will obtain the last temperature measurement. To switch to the previous measurement, press the '+' button.

The number indicated in interval of two measures corresponds to the number of measurements.

Press on the button '-' to go see the next measurement

To exit data memory, press the measure key. The FeverWatchers switches off automatically after 5 seconds.

## 8. CHANGING THE BATTERIES

Display: when the LCD screen displays 'Battery', the battery is low.
Operation: Open the lid and change the batteries, taking great care of the correct positioning. A mistake with installing the battery could cause damage to the apparatus and compromise the warranty of your FeverWatchers RC802i.

Never use rechargeable batteries. Use only alkaline batteries for single usage.

## IX. TECHNICAL CHARACTERISTICS

1. Normal conditions of use
Operating temperature: 50° – 140° F (10° C – 40° C)
Humidity rate: ≤ 85%
2. Power: DC3 V (2 batteries AA)
3. Size: 7.7 x 5.9 x 1.9 in – 196 x 150 x 50 mm (L x W x H)
4. Weight: 7.7oz (220g)
5. Display Resolution: 0.1° F (0.1°C)
6. Measuring range:
In body mode: 90°F – 109°F (32°C – 42.9°C)
In Surface Temp mode: 32°F – 140°F (0°C – 60°C)
7. Precision: From 96.8°F – 102.2°F (36°C – 39°C) = +/- 0.2°F/C
8. Consumption: ≤ 50mW
9. Accuracy: ± 0.54° F (0.3°C)
10. Measuring distance: 2 in – 3.14 in (5 cm – 8 cm)
11. Automatic stop: 5 sec.

**FEVERWATCH PRECISION**

| | |
|---|---|
| From 34°C to 35.9°C = ± 0.3°C<br>From 93.2°F to 96.6°F = ± 0.3°F | According to ASTM Standard E1965-1998 (2003) |
| From 36°C to 39°C = ± 0.2°C<br>From 96.8°F to 102.2°F = ±0.2°F | |
| From 39°C to 42.5°C = ± 0.3°C<br>From 102.2°F to 108.5°F = ± 0.3°F | |

The FeverWatchers RC802i can take temperature readings below 32°C or above 42.9°C (90°F to 109°F) but precision is not guaranteed outside of this range.

**LONGEVITY OF ACCURACY**

The FeverWatchers is guaranteed for 40,000 readings.

**X. ADVICE**

- The protective glass over the lens is the most important and fragile part of the thermometer; please take great care of it.
- Clean the glass with cotton fabric, wet with water or 70 proof isopropyl alcohol
- Do not use other batteries than alkaline batteries, do not recharge non rechargeable batteries, do not throw in fire.
- Remove the batteries when thermometer is not used for an extended period of time.
- Do not expose the thermometer to sunlight or water.
- An impact will damage the product.

**XI. ACCESSORIES SUPPLIED**

User Manual in English
Quick Start Guide
Guarantee card
Batteries supplied (AA)

**XII. TROUBLESHOOTING**

If you have one of the following problems while using your FeverWatchers, please refer to this breakdown service guide to help resolve the problem. If the problem persists please contact our customer service at sales@clinicalguard.com

THE SCREEN DISPLAYS TEMPERATURE GREATER THAN 95°

The temperature is in Fahrenheit change the measurement to Celsius (by pressing the Program Setting button to get the F1 function key)

THE SCREEN DISPLAYS THE BODY TEMPERATURE LOWER THAN 32°C (89.6°F)

To take a body temperature the function key F3 must be on Body mode. If you're on Surface Temp mode the 32°C (89.6°F) temperature displayed is showing the external temperature that your body releases.

THE SCREEN DISPLAYS THE MESSAGE HI



When using the FeverWatchers RC802i the message HI can show on the screen.

The analysis is above the measurement range selected, either greater than 42.9°C (109°F) in Body Mode or greater than 60°C (140°F) in Surface Temp Mode.

When using the FeverWatchers RC802i the message Lo can show on the screen.

The temperature analyzed is under the measuring range selected, either less than 32°C (90°F) in Body Mode or less than 0°C (32°F) in Surface Temp Mode.

This message displays in various cases – please find below a list of the main cases:

| Reasons for LO message display | Advice |
|---|---|
| Temperature reading hampered by hair, perspiration... | Make sure that there is no obstruction prior to taking a temperature. |
| Temperature hampered by air flow. | Make sure there is no air flow as this could interfere with the infrared system. |
| Temperature readings too close together, the FeverWatchers did not have the chance to reboot itself. | Allow a pause of 15 seconds minimum between two readings – 1 minute pause is advised. |
| The measuring distance is too far. | Please respect the measuring distance (between 2 in and 3.14 in or 5 and 8 cm). |